

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Klaus Florian Schuegraf et al.

Title: SELECTIVE SPACER TO PREVENT METAL OXIDE FORMATION DURING POLYCIDIC REOXIDATION

Docket No.: 303.278US1

Serial No.: 08/902,809

Filed: July 30, 1997

Due Date: November 26, 2000(Sunday)

Examiner: Ori Nadav, Ph.D.

Group Art Unit: 2811

Board of Patent Appeals and Interferences

Commissioner for Patents

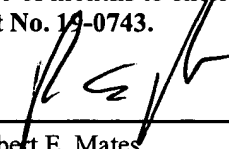
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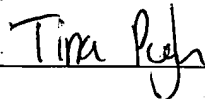
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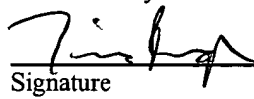
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S/N 08/902,809

PATENT

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C. Schuegraf

REPLY BRIEF UNDER 37 C.F.R. 1.193(b)

Board of Patent Appeals
and Interferences
Commissioner for Patents
Washington, D.C. 20231

This Brief is presented in response to the Examiner's Answer dated 26 September 2000 in the above-identified appeal. Claims 23-31 and 36-44 remain for consideration. Entry of this Reply in the above-identified application is respectfully requested for review by the Board of Patent Appeals and Interferences.

This Reply Brief is filed in triplicate. The Examiner is hereby authorized to charge any necessary fees to Deposit Account No. 19-0743.

REPLY

The Examiner made several statements in the Examiner's Answer that were not in the Final Office Action dated 2 February 2000 which the applicant will now reply to.

On page 4, lines 6-8 of the Answer the Examiner stated that "There is no support in the specification for a spacer being in direct contact with the feature and the oxide layer, and at the same time not being in contact with the oxide layer." On the contrary, the specification states that "a selective spacer 210 is deposited such that the amount deposited on the polysilicon and refractory metal 205 is less than the incubation thickness, leaving the active area 215 free of deposition." Specification page 4, lines 24-27.

The Examiner stated the rejection of claims 23, 25-27, 29, 30, 36, 38, 42, and 44 under 35 USC § 103(a) in view of Ho, Keller, and McLevige in page 5 of the Answer. Apparently Manning is no longer applied in the rejection. The applicant notes that the statement of the rejection in the Answer is substantially different from the corresponding rejection in the Final Office Action dated 2 February 2000. The applicant maintains that a careful examination of Ho,

Keller, and McLevige will result in a reversal of the rejection.

Starting on page 6, line 14 of the Answer the Examiner refers to the statement in column 5, lines 18-20 of McLevige that "[i]n the case that the silicon nitride layer is omitted, the silicon dioxide could be replaced by silicon nitride." There is no explicit indication that McLevige is referring to the sidewall deposits of SiO₂ 64 and the layer of silicon nitride 38. The Examiner makes the argument that "[t]here is no reference in McLevige's invention to other layers comprising silicon nitride and silicon dioxide. Therefore, it is clear that the above statement means that layer 38 should be omitted, and layers 62, 64, and 66 are formed of silicon nitride." Answer, sentence bridging pages 6 and 7. The Examiner requires that one skilled in the art go through an elaborate exercise in speculation and deduction to interpret this sentence in McLevige. This is contrary to the admonition of the Federal Circuit that the showing of evidence of a teaching or motivation to combine "must be clear and particular." *In re Dembiczak*, 50 USPQ2d at 1617.

Furthermore, even if this sentence means what the Examiner claims it does, it still does not provide a suggestion for the Examiner's combination. McLevige never states what would replace the layer 38. Also, the sidewall deposits 64 are described as being deposited along with a layer 62 of SiO₂ on the layer 38. McLevige, column 3, lines 6-16. Therefore, whatever is deposited on the sidewall is deposited on the adjacent horizontal surfaces. McLevige does not disclose or suggest the spacer comprising silicon nitride or an amorphous silicon film extending to and terminating at a boundary between the first layer of oxide and the sidewalls of the electrode as recited in claim 36.

The applicant notes that the suggestions for the combination recited in lines 4-10 of page 7 of the Answer are not specifically referenced in any of Ho, Keller, and McLevige, and therefore the combination does not meet the requirements of *In re Dembiczak*.

The Examiner states that McLevige "points out that silicon oxide and silicon nitride are interchangeable materials." Answer, page 7, lines 11-13. This is not what McLevige says in the sentence in column 5, lines 18-20. According to McLevige, the substitution of silicon nitride for silicon dioxide takes place only with the omission of the silicon nitride layer.

The Examiner states on page 10, lines 7-8 of the Answer that "[t]he specification clearly states that the original oxidation is the process which forms smile 225, and not active area 215."

This is incorrect. The specification states that:

“Once the spacer is deposited, the device undergoes polycide reoxidation. Because the spacer is selectively deposited there is no need for an additional etch step to remove excess spacer material. The oxidation process forms smile 225, and active area 215 and selective spacers 210 are reoxidized.” Specification, page 5, lines 3-6.

It is the polycide reoxidation following the spacer deposition that results in the smile.

On page 10, lines 15-16, the Examiner dismissed original claims 9 and 11 as reciting a different invention as evidenced by the restriction/election requirement. This statement is not a correct application of the law, which is that claims originally filed with an application “constitute their own description. Later added claims of similar scope and wording are described thereby.” *In re Koller*, 204 USPQ 702, 706 (CCPA 1980).

In page 11, lines 5-14 of the Answer the Examiner claims that he did not understand the layer 215 to be oxide, and considered that the device described in the application could have been a MESFET transistor which operates without gate oxide. However, this statement is contradicted by the Examiner’s rejection of claims 26-31, 36-41, and 44 under 35 U.S.C. § 112, second paragraph, in page 4 of the Final Office Action dated 2 February 2000. The Examiner rejected the claims “as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections....[t]he omitted structural cooperative relationship is: a first layer of oxide.” Apparently the Examiner considered the first layer of oxide to be an essential structural element of the claimed invention on 2 February 2000. The Examiner withdrew this rejection in the Answer. Answer, page 2, lines 11-12.

In reference to his conclusion of obviousness, the Examiner stated “[i]t must be recognized that *any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning.*” Answer, page 14, lines 5-7 (Emphasis added). The Examiner is admitting the use of hindsight, which the Federal Circuit has stated is clearly improper. *In re Dembiczak*, 50 USPQ2d at 1616-17.

REPLY BRIEF

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CONCLUSION

The appellant respectfully submits that the Examiner's rejections of claims 23-31 and 36-44 were erroneous. Reversal of those rejections is respectfully requested.

Respectfully submitted,

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